SERVICE MANUAL

PROGRAM AUDIO TIMER

SANYO

ET 3510
(EUROPE)

SPECIFICATIONS

Type	Daily program timer
Time display	Digital display with fluorescent display tube 23 to 0 (hours) 59 to 00 (minutes)
AC outlets	4 (total capacity: 500 W)
Power requirements	AC: 110/220 V, 50 Hz
Power consumption	5 W (main unit only)
Dimensions	440(W) x 45(H) x 150(D) mm (including knobs)
Weight (approx.)	1.88kg

—Specifications are subject to change without notice.—

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Precautions for use

1 Before use, check whether the power line AC selector switch on the rear panel of the unit is set properly.
If the setting does not coincide with the values in your area, this may result in a breakdown or in incorrect time display. Therefore, make sure that the selector switch is set properly.

Caution:
When changing the position of the AC selector, do not remove the two screws at the same time.

2 Do not place the unit immediately above or beside a radio or receiver, etc. with a built-in ferrite bar antenna.
This may generate noise.

3 Do not connect the unit to a radio, etc. with a power consumption of less than 2W or 3W.
The switch which is coupled to the timer may not be turned off.

4 Do not connect the unit to a tape deck or tape recorder which is not provided with a stand-by mechanism. This may result in a breakdown of the tape deck or tape recorder.

5 This unit should be operated only at the 50 Hz area.

Names of the parts

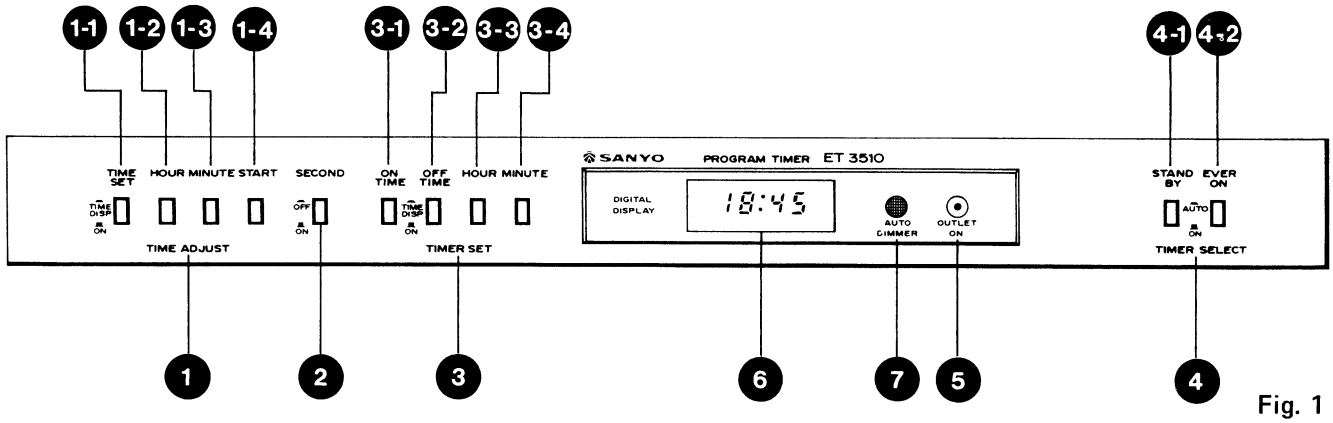


Fig. 1

1. TIME ADJUST
   - 1-1 TIME SET switch
   - 1-2 HOUR switch
   - 1-3 MINUTE switch
   - 1-4 START switch
2. SECOND switch
3. TIMER SET
   - 3-1 ON TIME switch
   - 3-2 OFF TIME switch
   - 3-3 HOUR switch
   - 3-4 MINUTE switch
4. TIMER SELECT
   - 4-1 STAND BY switch
   - 4-2 EVER ON switch
5. OUTLET ON indicator
6. Time digital display
7. AUTO DIMMER control (automatic brightness control)

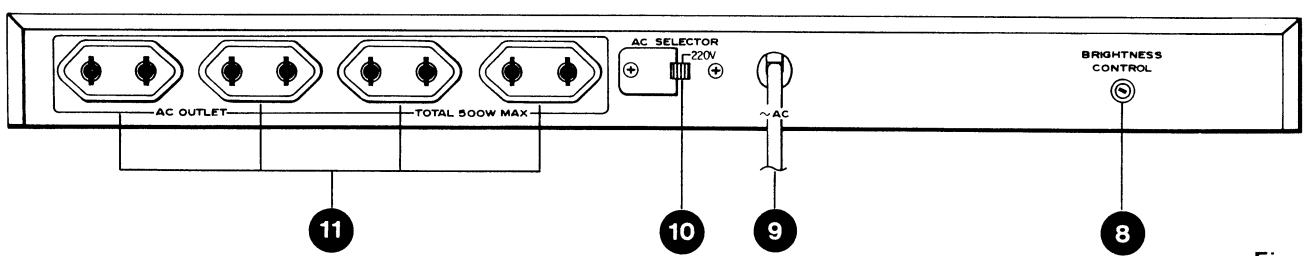


Fig. 2

8. Brightness control knob
9. AC cord
10. Power line voltage selector switch
11. AC OUTLET sockets

Adjusting the brightness

The unit's automatic dimmer control serves to adjust the brightness of the display digits automatically in line with the changes in the brightness of the room. Nevertheless, the brightness can be adjusted beforehand.
Use a small screwdriver to rotate the brightness control knob counterclockwise or clockwise.

Caution:

Do not rotate the knob too far since the automatic dimmer control may no longer work.

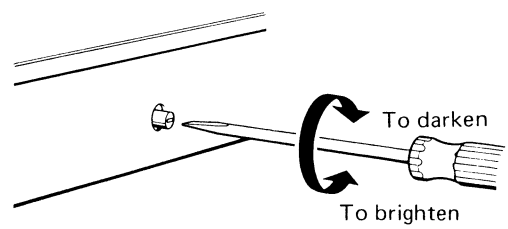


Fig. 3

Fig. 3

Display darkens when rotated clockwise.
Display brightens when rotated counterclockwise.

Setting the time

1 Connect the power cord to the AC power outlet.
The timer digital display's colon now winks.

- The display winks when the power cord is initially connected to the AC outlet and also when there has been a power outage or failure, when connected, and the power has thereafter been restored.
When the display winks, the time is not indicated and so it is necessary to set the time and also the asutomatic ON/OFF times again.

2 Check that the SECOND switch is set to OFF (depressed position).

3 Set the TIME ADJUST's TIME SET switch to ON (released position). The colon now stops winking and a 0:00 display appears.

4 Set the time.
First, depress the TIME ADJUST's HOUR switch.
When the HOUR switch is kept depressed, the digits on the left of the colon are sent forward rapidly. When depressed once, the hour digit advances by 1 hour. When the correct hour digit approaches, depress the switch once to advance the hours. (The display changes from 23 to 0.)
Next, depress the TIME ADJUST's MINUTE switch.
Like the HOUR switch, the digits on the right of the colon are sent forward rapidly when the MINUTE switch is kept depressed and the minute digit advances by 1 minute when the switch is depressed once. When the correct minute digit approaches, depress the switch once to advance the minutes. (The display changes from 59 to 00.)

5 Depress the TIME ADJUST's START switch when the time has been set. The bottom colon now starts to wink to indicate that the clock function is now working.

6 Set the TIME ADJUST's TIME SET switch to TIME DISP (depressed position).

Checking the seconds

Set the SECOND switch to ON (released position).
The normal time display (hours + minutes) now changes to minutes + seconds, with the minutes on the left of the colon and the seconds on the right.

Caution:

- The seconds cannot be set with the SECOND switch. When the time is set with the TIME ADJUST's HOUR and MINUTE switches and the START switch is depressed, the seconds are automatically set to 00 . This means that all you have to do to set the seconds, is to set the time to a time signal on the radio or TV.

- After checking the seconds, set the SECOND switch to OFF (depressed position). The time returns to the normal display (hours + minutes).

Automatic power ON/OFF setting

1 Check that the TIMER SELECT's STAND BY switch and EVER ON switch are at AUTO (depressed position).

2 Set the TIMER SET's ON TIME switch to ON (released position) and first set the power ON time.
0:00 is displayed from the normal time display (The display registers 0:00 with the first setting but the previously set time is displayed with the second and later settings.).

- When the automatic power ON is set, the automatic power OFF time is automatically cleared and so the power OFF time cannot be set first.
Set the automatic power OFF time after having set the automatic power ON time. If only the ON time is set, the unit will remain on continuously and the power will not be shut off.

3 Set the automatic power ON time.
First, depress the TIMER SET's HOUR switch.
When the HOUR switch is kept depressed the digits on the left of the colon are sent forward rapidly. When depressed once, the hour digit advances by 1 hour. When the set hour digit approaches, depress the switch once to advance the hours. (The display changes from 23 to 0.)
Next, depress the TIMER SET's MINUTE switch.
Like the HOUR switch, the digits on the right of the colon are sent forward rapidly when the MINUTE switch is kept depressed and the minute digit advances by 1 minute when the switch is depressed once. When the set minute digit approaches, depress the switch once to advance the minutes. (The display changes from 59 to 00.)

4 Once the time has been set, set the TIMER SET's ON TIME switch to TIME DISP (depressed position).
The display now indicates the normal time.

5 Once the power ON time has been set, set the TIMER SET's OFF TIME switch to ON (released position), and set the power OFF time.
The display now changes from the normal time to 0:00 .

6 Set the automatic power OFF time.
First depress the TIMER SET's HOUR switch.
When the HOUR switch is kept depressed, the digits on the left of the colon are sent forward rapidly. When depressed once, the hour digit advances by one hour. When the set hour digit approaches, depress the switch once to advance the hours. (The display changes from 23 to 0.)
Next, depress the TIMER SET's MINUTE switch.
Like the HOUR switch, the digits on the right of the colon are sent forward rapidly when the MINUTE switch is kept depressed and the minute digit advances by 1 minute when the switch is depressed once. When the set minute digit approaches, depress the switch once to advance the minutes. (The display changes from 59 to 00.)

7 Once the time has been set, set the TIMER SET's OFF TIME switch to TIME DISP (depressed position).
The display now indicates the normal time.

8 At the preset power ON time, the power is automatically supplied, the OUTLET ON indicator lights up and this indicates that the unit is being powered.

9 At the preset power OFF time, the power is automatically switched off, and the OUTLET ON indicator goes off to indicate that the power has been turned off.

Checking the automatic power ON/OFF set times

Checking the automatic power ON set time:
Set the TIMER SET's ON TIME switch to ON (released position).

Checking the automatic power OFF set time:
Set the TIMER SET's OFF TIME switch to ON (released position).
The display is set from the normal time display to the automatic power ON/OFF time.

Caution:

- Do not depress the TIMER SET's HOUR or MINUTE switches when checking the automatic power ON/OFF set time. If they are depressed, the automatic power ON/OFF times will be changed or they will be erased and automatic power ON/OFF operations will no longer be performed.

- After having checked the automatic power ON/OFF set times, set the TIMER SET's ON TIME switch or OFF TIME switch to TIME DISP (depressed position). The normal time display will be indicated again.

Temporary power off during automatic power ON

Check that the TIMER SELECT's EVER ON switch is at AUTO (depressed position) and set the STAND BY switch to ON (released position). Once the STAND BY switch is set to ON (released position), the OUTLET ON indicator goes off and power is no longer supplied to the unit. When the STAND BY switch is set to AUTO (depressed position), the OUTLET ON indicator lights up and power is again supplied to the unit.

When not using the automatic power ON/OFF functions

Check that the TIMER SELECT's EVER ON switch is set at AUTO (depressed position) and set the STAND BY switch to ON (released position). When the STAND BY switch is kept at ON (released position), the automatic power ON/OFF functions do not work.

When supplying power continuously

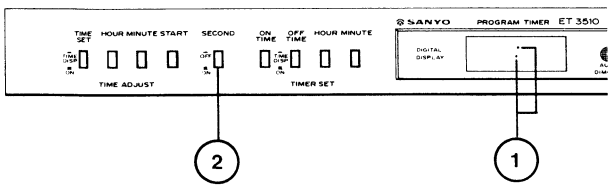
Set the TIMER SELECT's EVER ON switch to ON (released position). The OUTLET ON indicator remains on and power is continuously supplied. (There is no automatic power OFF function.)

- The manual ON (power on) position of the TIMER SELECT's EVER ON switch functions as the manual OFF (power off) position of the STAND BY switch.
  If both switches are at ON (released position), the EVER ON switch takes priority.

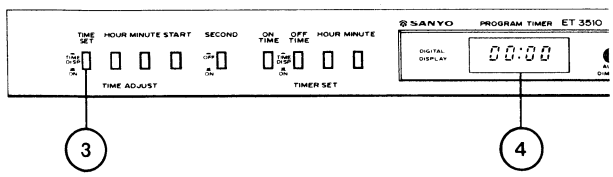
Example for setting the time

Setting time to 35 minutes past 12.

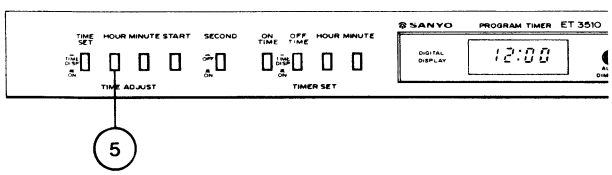
1) Winks
2) Set SECOND switch to OFF (depressed position).



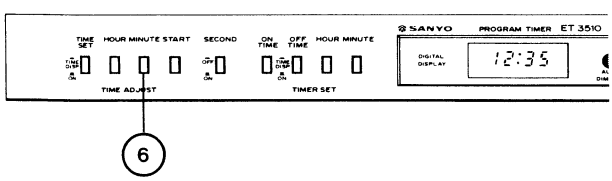
3) Set TIME SET switch to ON (released position).
4) Display is set to 0:00.



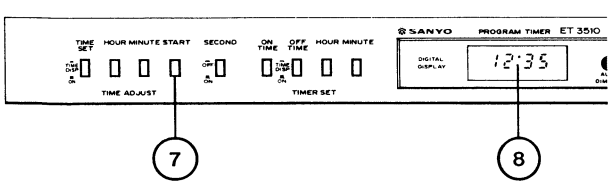
5) Depress HOUR switch and set to "12".



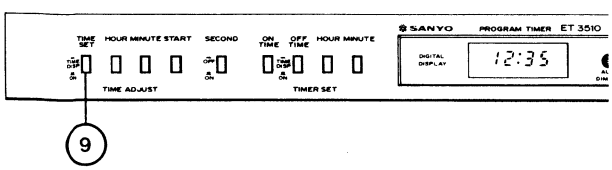
6) Depress MINUTE switch and set to "35".



7) Depress START switch.
8) Winks



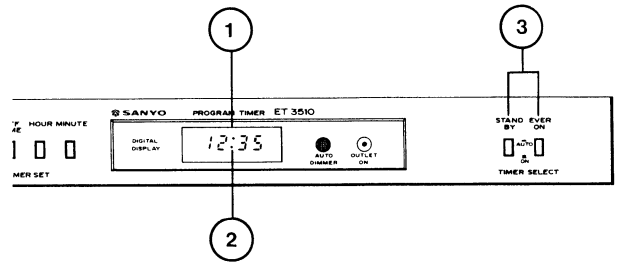
9) Set TIME SET switch to TIME DISP (depressed position).



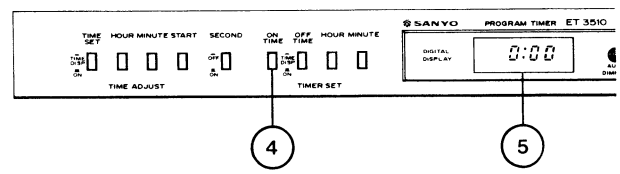
Example of automatic power ON setting

Setting time to 13:45.

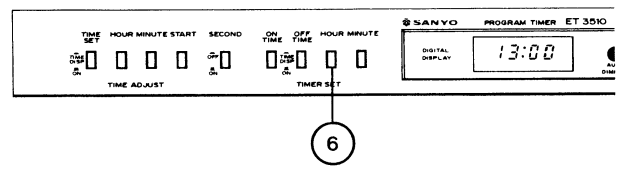
(1) Present time
(2) Winks
(3) Set STAND BY switch and EVER ON switch to AUTO (depressed position).



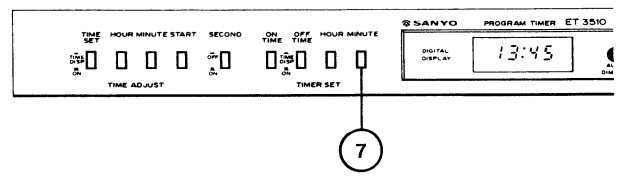
(4) Set ON TIME switch to ON (released position).
(5) Display is set to 0:00.



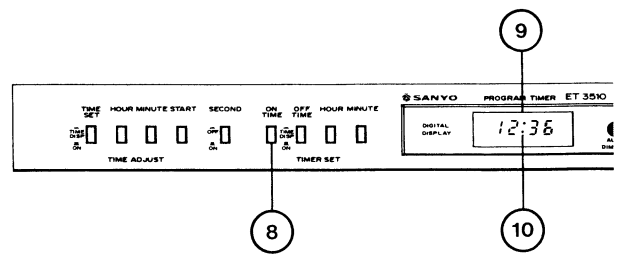
(6) Depress HOUR switch and set to "13".



(7) Depress MINUTE switch and set to "45".



(8) Set ON TIME switch to TIME DISP (depressed position).
(9) Display indicates present time.
(10) Winks

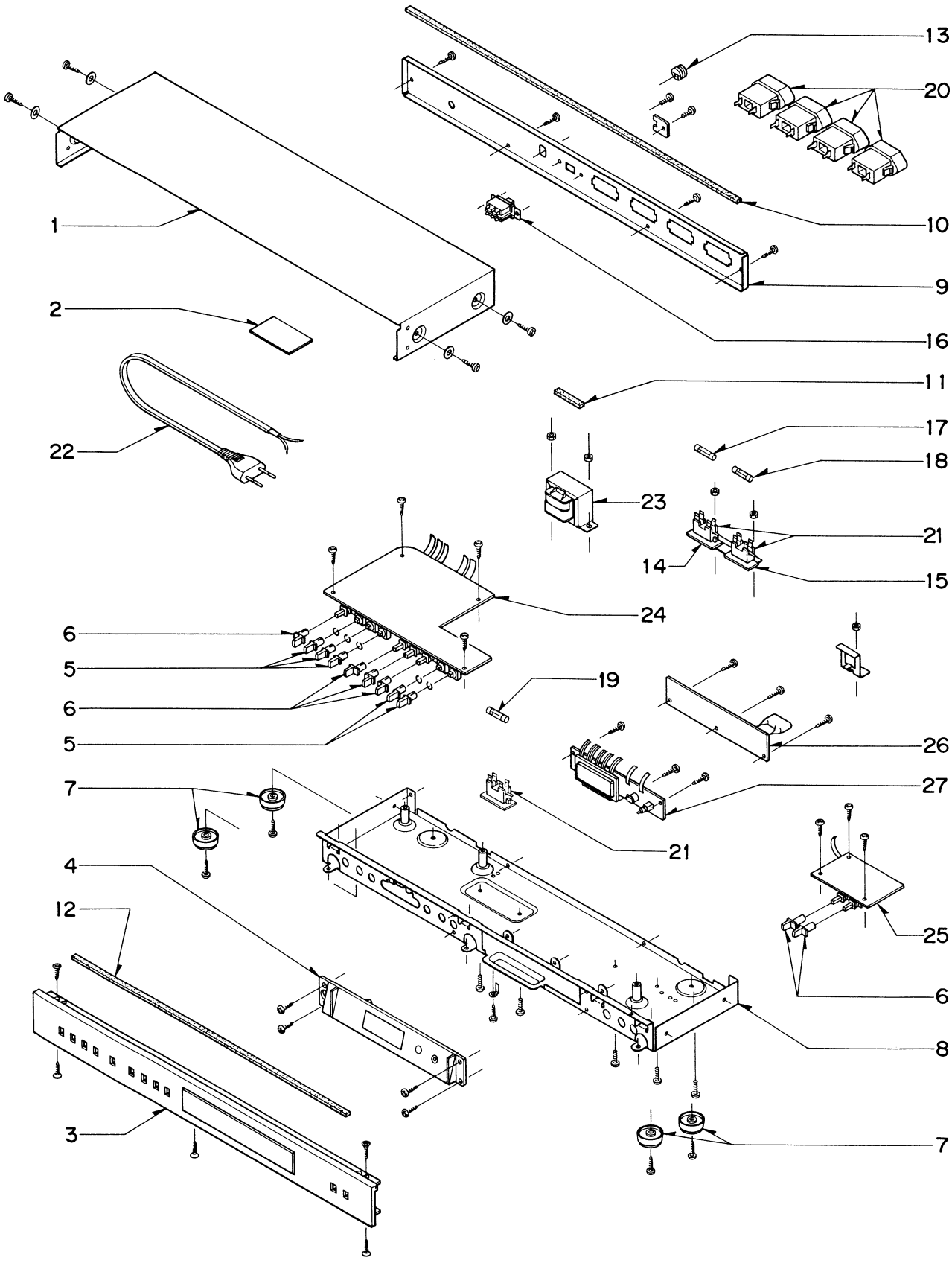


TROUBLE-SHOOTING GUIDE

Trouble	Cause	Remedy
Time display vanishes and center colon winks.	Power has been restored after power outage or failure.	Time and automatic power ON/ OFF must be set.
No change in display even when TIME ADJUST's HOUR and MINUTE switches are depressed.	TIME ADJUST's TIME SET switch is at TIME DISP (depressed position).	Set TIME SET switch to ON (released position).
No change in display even when TIMER SET's HOUR and MINUTE switches are depressed.	TIMER SET's ON TIME switch or OFF TIME switch is at TIME DISP (depressed position).	Set ON TIME switch or OFF TIME switch to ON (released position).
No automatic power ON.	TIMER SELECT's STAND BY switch is at ON (released position).	Always set STAND BY switch to AUTO (depressed position) for automatic power ON.
No automatic power OFF.	TIMER SELECT's EVER ON switch is at ON (released position).	Always set EVER ON switch to AUTO (depressed position) for automatic power OFF.
Cannot depress TIME ADJUST's START switch after having set time.	SECOND switch is at ON (released position).	Always set SECOND switch to OFF (depressed position) to set time.
Clock time is extremely fast.	This unit is used at the 60 Hz area.	Use the unit at the 50 Hz area.
Time display does not change even after many hours have passed. Display does not change even when SECOND switch is set to ON (released position).	TIME ADJUST's START switch is not depressed. (Colon bottom is not winking.)	Depress START switch and set TIME ADJUST's TIME SET switch to TIME DISP (depressed position).
No automatic power OFF even when TIMER SELECT's STAND BY switch is set to ON (released position).	TIMER SELECT's EVER ON switch is at ON (Released position). (OUTLET ON indicator is lighted.)	Set EVER ON switch to AUTO (depressed position).

CAUTION: This timer is specifically designed to operate ONLY with SANYO audio equipment.

CABINET & CHASSIS EXPLODED VIEW



PARTS LIST

PACKING PARTS LIST

Ref. No.	Parts Number	Description
	131 6 1139 79202	Box Corrugate-EXP (Inner Carton)
	131 6 1139 79301	Box Corrugate-EXP (Outer Carton)
	131 6 2119 01980	Bag Polyethylene-EXP
	131 6 3009 29120	Pad (Bottom)
	131 6 3009 29130	Pad (Top)
	131 6 3009 29140	Pad (Outer Carton)

ACCESSORIES PARTS LIST

Ref. No.	Parts Number	Description
	131 6 4119 80900	Explanatory Booklet

CABINET PARTS LIST

Ref. No.	Parts Number	Description
1	131 2 1410 22100	Cover
2	131 2 4208 32200	Spacer

APPEARANCE PARTS LIST

Ref. No.	Parts Number	Description
3	131 0 1016 34600	Panel Decorate Assy
4	131 0 2025 00300	Frame Assy
5	131 2 1601 60300	Knob, Push Switch (Non Lock)
6	131 2 1601 60400	Knob, Push Switch (Lock)

CHASSIS PARTS LIST

Ref. No.		Parts Number	Description
7		131 2 1801 12900	Leg
8	*	131 2 3301 26400	Chassis
9	*	131 2 3306 30900	Panel Rear
10		131 2 5205 15300	Cushion
11		131 2 5205 15400	Cushion
12		131 2 5205 23100	Cushion
13		131 2 6111 14200	Bushing
14		131 2 7103 20914	Label (Fuse T250mA)
15		131 2 7103 20918	Label (Fuse T200mA)

ELECTRICAL PARTS LIST

Ref. No.		Parts Number	Description
16	⚠	4 2312 01020	Slide Switch (Voltage Select)
17	⚠	4 2349 20960	Fuse, T200mA
18	⚠	4 2349 21320	Fuse, T250mA
19	⚠	4 2349 20570	Fuse, T2.5A
20	⚠	4 2352 00450	AC Socket
21	⚠	4 2359 21021	Fuse Holder
22	⚠	4 2439 20528	Line Cord
23	⚠	4 2512 09721	Power Transformer
24	*	131 0 4001 03940	Main P.C.B. Assy
25	*	131 0 4001 03950	Sub P.C.B. Assy
26	*	131 0 4001 03960	Power Source P.C.B. Assy
27	*	131 0 4001 03970	Digitron P.C.B. Assy

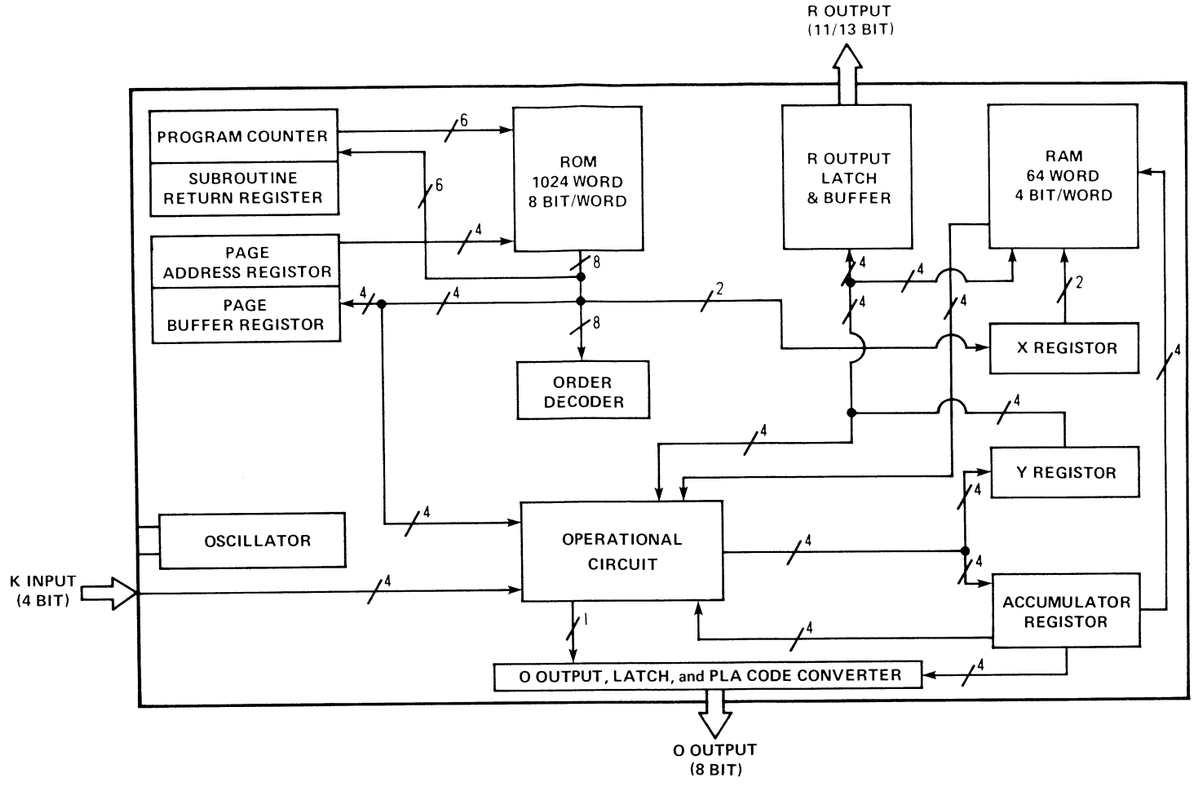
*—Not a service part.

NOTES:
1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.

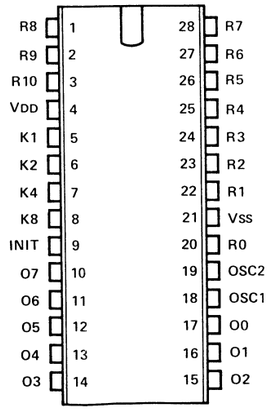
PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN A COMPONENT REPLACEMENT IS MADE IN ANY AREA OF AN UNIT. COMPONENTS INDICATED BY A MARK ⚠ IN THIS PARTS LIST AND THE SCHEMATIC DIAGRAM SHOW COMPONENTS WHOSE VALUE HAS SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE FOLLOWING PARTS LIST BE USED FOR COMPONENT REPLACEMENT POINTED OUT BY THE MARK.

μP2725 BLOCK DIAGRAM

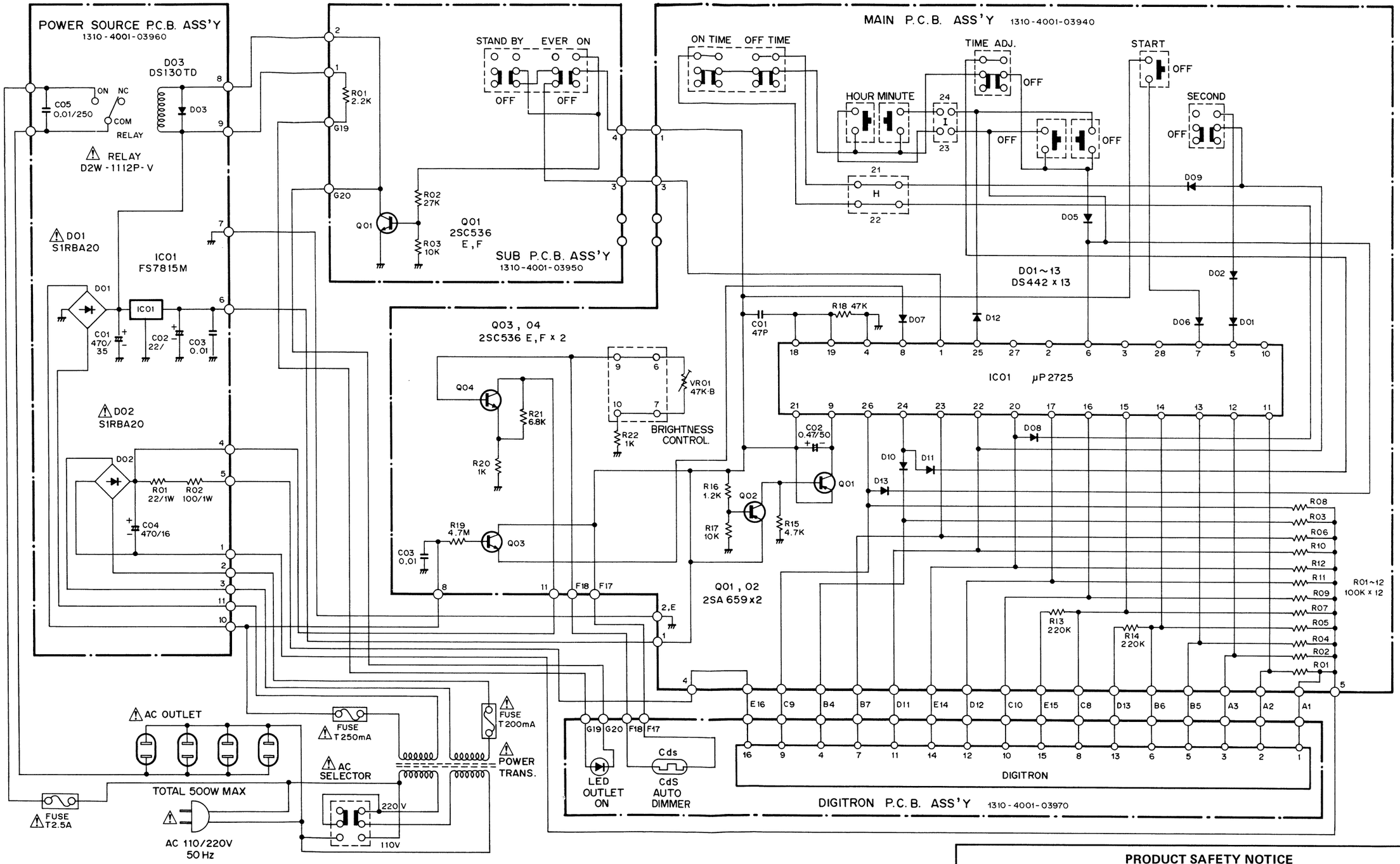


PIN CONFIGURATION



(TOP VIEW)

SCHEMATIC DIAGRAM



NOTES:

1. All resistors values are indicated in "ohm" (K=10^3, M=10^6).
2. All capacitors values are indicated in "μF" (P=10^{-12}).
3. All volatages indicated on the schematics are measured under the following conditions.
   a. Use a V.T.V.M.
   b. All voltages ±10% with respect chassis ground
   c. No signals at input terminals
   d. AC input at 220 volts 50 Hz
4. This is a fundamental schematics diagram. Some products may be modified without notice.

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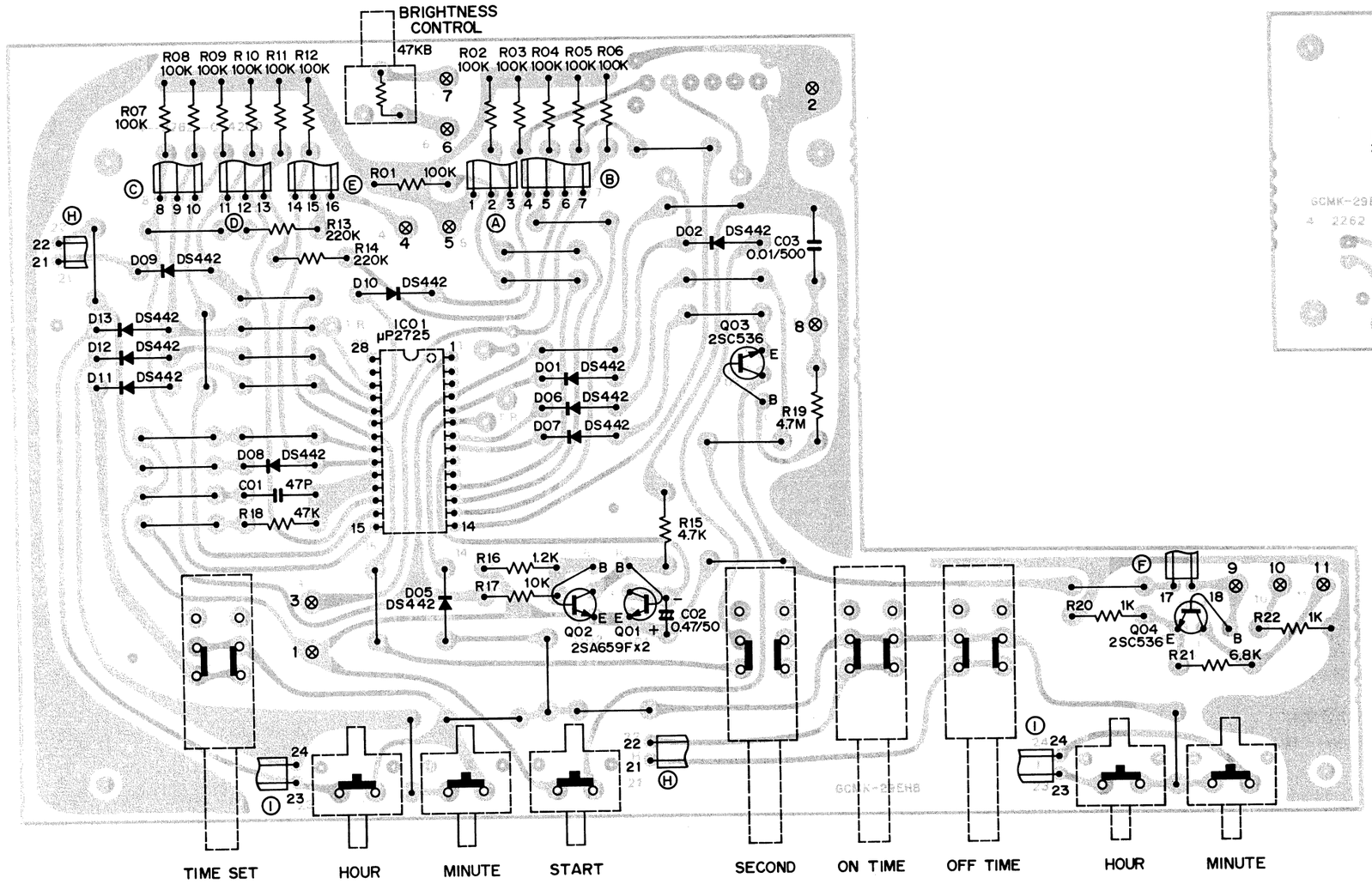
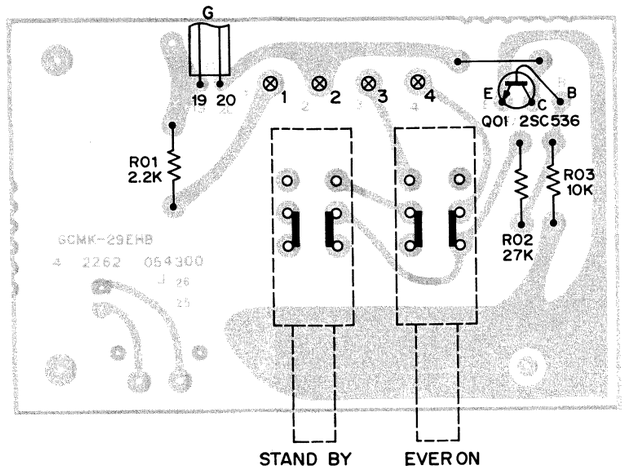
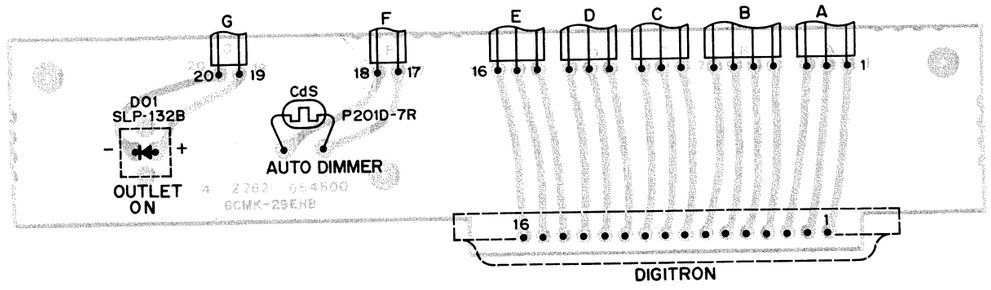
MAIN PRINTED CIRCUIT BOARD
(BOTTOM VIEW)



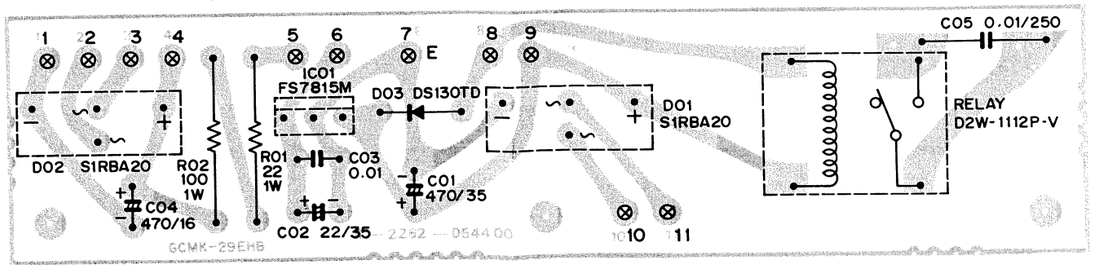
SUB PRINTED CIRCUIT BOARD
(BOTTOM VIEW)



DIGITRON P.C.BOARD
(BOTTOM VIEW)



POWER SOURCE P.C.BOARD
(BOTTOM VIEW)



PARTS LIST

MAIN P.C.B. Assy
131 0 4001 03940

Ref. No.	Parts Number	Description
VR01	4 2222 01140	Semi-Fixed 47k-B
	4 2312 02310	Push Switch 1key
	4 2312 03420	Key Board Switch
	4 2312 03820	Switch Push 3key
	CAPACITORS	
C01	C1HCZJ470SPA	Ceramic 47 pF 50V ±5%
C02	C1HRY-474APA	Electrolytic 0.47 μF 50V
C03	C2HYDP103A	Ceramic 0.01 μF 500V +100,–0%
	SEMICONDUCTORS	
D01,02 05,06 07,08 09,10 11,12 13	205 5 9040 44210	Diode, DS-442
IC01	III-MP2725AS	IC, μP2725AS
Q01,02	203 5 6800 65960	TR 2SA659 F
Q03,04	203 5 5000 53650	TR 2SC536 E, F
	RESISTORS	
R01,02 03,04 05,06 07,08 09,10 11,12	R2EDZJ104APA	Carbon 100k 1/4W ±5%
R13,14	R2EDZJ224APA	Carbon 220k 1/4W ±5%
R15	R2EDZJ472APA	Carbon 4.7k 1/4W ±5%
R16	R2EDZJ122APA	Carbon 1.2k 1/4W ±5%
R17	R2EDZJ103APA	Carbon 10k 1/4W ±5%
R18	R2EDZJ473APA	Carbon 47k 1/4W ±5%
R19	R2EDPJ475A	Carbon 4.7M 1/4W ±5%
R20	R2EDZJ102APA	Carbon 1k 1/4W ±5%
R21	R2EDZJ682APA	Carbon 6.8k 1/4W ±5%
R22	R2EDZJ102APA	Carbon 1k 1/4W ±5%

SUB P.C.B. Assy
131 0 4001 03950

Ref. No.	Parts Number	Description
	4 2312 03810	Push Switch 2key (Ever ON. Standby)
	SEMICONDUCTORS	
Q01	203 5 5000 53650	TR 2SC536 E, F
	RESISTORS	
R01	R2EDZJ222APA	Carbon 2.2k 1/4W ±5%
R02	R2EDZJ273APA	Carbon 27k 1/4W ±5%
R03	R2EDZJ103APA	Carbon 10k 1/4W ±5%

POWER SOURCE P.C.B. Assy
131 0 4001 03960

Ref. No.	Parts Number	Description
⚠	4 2322 00120	Relay
	CAPACITORS	
C01	C1VRF-477A.	Electrolytic 470 μF 35WV
C02	C1VRY-226APA	Electrolytic 22 μF 35V
C03	C1HFYK103APA	Mylar 0.01 μF 50V ±16V
C04	C1CRE-477A	Electrolytic 470 μF 16V
C05	C2EHRM103A	Metallized Paper 0.01 μF 250V ±20%
	SEMICONDUCTORS	
D01,02	⚠DDD-S1RBA20	Diode, S1RBA20
D03	202 5 2440 13040	Diode, DS-130T
IC01	IAA-FS-7815M	IC, Votage Regulator
	RESISTORS	
R01	R3AXBJ220A	Oxide Metal Film 22 1W ±5%
R02	R3AXBJ101A	Oxide Metal Film 100 1W ±5%

DIGITRON P.C.B. Assy
131 0 4001 03970

Ref. No.	Parts Number	Description
	4 2082 00010	Cd S Cell P201D-7R
	4 2142 00030	Digitron
	131 2 4208 27100	Spacer (L.E.D.)
	131 2 4208 31400	Spacer (L.E.D.)
	131 2 5205 22500	Cushion
	SEMICONDUCTORS	
	DOO-SLP-132B	Diode, SLP-132B

NOTES:
1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and/or resistors must be multiple of 10 pcs.